

REMARKS/ARGUMENTS

In the Office Action mailed on August 19, 2008, the Examiner objected to Claim 13 for an error. The Examiner rejected Claim 52 under 35 U.S.C. 101, and claims 6-13, 16-17, 20-22, 25, 26, 27 and 30-32 under 35 U.S.C. 112, second paragraph as indefinite. By this response, the above-identified claims are amended to comply with the rules.

Claims 1, 3-34, 36-47, and 50-53 of this application are rejected under 35 U.S.C. 103(a) as unpatentable over Schnack 's "Automatic segmentation..." in view of Hahn (USPub. No. 20030068074). Claims 2 and 35 were rejected on the same basis and further in view of Chung's "Anatomical-driven segmentatuin of the 3rd and 4th ventricles in MR data".

Applicants appreciate the Examiner's indication that claims 48 and 49 would be allowable if rewritten in independent form including all the limitations of the base claim and all the intervening claims. Claims 48 and 49 are amended to include all the limitations of claim 1. Accordingly, independent claims 48 and 49 are now considered to be allowable.

Applicant appreciates the time and consideration provided by the Examiner in reviewing this application, and by this response makes some amendments to the claims according to the Examiner's suggestions, and also to comply with US rules. In making these revisions care has been taken that no new matter is introduced and the amended claims are fully supported by the specification as originally filed in the present application.

Applicant respectfully traverses the rejection at least for the following reasons:

Rejection under 103(a)

The Examiner rejected claims 1, 3-34, 36-47, and 50-53 as unpatentable over Shnack in view of Hahn. However, the Examiner admits that the combination of Schnack's reference with Hahn's does not teach that it can be applied to one or more images of the fourth ventricle. Applicants amended the independent claim 1 to include some limitation of claim 2 directed to the forth ventricle.

The Examiner alleges that Chung discloses the use of one or more images of the fourth ventricle. Applicants respectfully disagree with the Examiner since it is believed that the abstract of Chung as cited by the Examiner does not disclose sufficient information for the skilled reader to produce a workable solution like the present application. Even if the full article was available, there is no reason to believe that the cited references of Schnack and Hahn would be combinable with Chung.

Chung merely teaches a method for segmentation of a brain's 3rd and 4th ventricles. Chung mentions that the method exploits anatomical knowledge about these structures and uses gradient-based edge detection and volume-growing to complete the segmentation. In addition, nearby anatomic landmarks are extracted. Chung does not disclose or suggest extracting cerebral ventricular system information from images of cerebral ventricular regions.

Applicants believe that the claimed invention "as a whole" would have not been obvious in view of the prior art, alone or in combination, to a person of ordinary skill in the art, and that the Examiner has only applied Chung in hindsight of the application.

However, assuming a person of ordinary skill in the art were to combine segmentation of 3rd and 4th ventricles in Chung with the method in Schnack, he would still not obtain a functional solution for extracting cerebral ventricular system information from images of cerebral ventricular regions similar to the present invention. Schnack discloses method for automatic segmentation of the

left, right and third ventricles from MR Images. As explained in the Background section of the present application, Schnack does not extract information about the fourth ventricle. None of the diagrams or description in Schnack even discloses or suggests *the presence* of a 4th ventricle. In particular, there is no indication that the method in Schnack can be applied to 4th ventricle.

Therefore, it seems unreasonable to claim that such a method could now be applied to the fourth ventricle without any inventive step involved. Note that information on the fourth ventricle is much harder to obtain properly, as disclosed in the present application by using a larger initial ROI for V4 (see page 14, section 2.2.4).

Accordingly, Applicants respectfully submit the cited prior art, alone or in combination do not teach the present invention as claimed in the independent claim 1 as recently amended, and claim is novel and patentable over the prior art. Applicants maintain that dependent claims 2-47 and 50-53 as originally presented and amended by this response are also novel and patentable over the prior art for reasons discussed with reference to the independent claim 1. Therefore, the application is now in condition for allowance, which allowance is earnestly solicited.

The Commissioner is hereby authorized to charge any fees, which may be required in connection with this correspondence, to Deposit Account No. 06-1135.

Respectfully submitted,
FITCH, EVEN, TABIN & FLANNERY



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